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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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LIR, BEN H				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/559,840

Applicant(s)

DEL PRADO PAVON ET AL.

Examiner

BEN H. LIU

Art Unit

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This is in response to an amendment/response filed on November 14th, 2008.
2. Claims 1 and 11 have been amended.
3. Claims 3 and 13 have been cancelled.
4. No claims have been added.
5. Claims 1-20 are currently pending.

Claim Rejections - 35 USC § 103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura (U.S. Patent Application Publication 2003/0210673) in view of Ho et al. (U.S. Patent Application Publication 2003/0169769).

For claim 1, Nishimura discloses a method of transmitting data frames over a data network, comprising transmitting a plural number of MAC (Media Access Control) data frames (see paragraph 69, which recite an extended MAC frame containing multiple MAC frames that are combined), each MAC data frame including a header, a data field, and a frame check

sequence (FCS) (*see figure 6, which recite multiple MAC frames each with a MAC header, data field, and FCS field*), with only a single PLCP (Physical Layer Control Procedure) overhead (*see figure 6, which recite a single PLCP preamble and header for the combined plurality of MAC frames*).

Nishimura discloses all the subject matter of the claimed invention with the exception wherein the method of transmitting data frames over a data network includes transmitting a concatenated MAC header indicating said plural number. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data (*see paragraph 15*) wherein the aggregated frame includes a frame sub-body count field 126 that indicates the number of frames that are aggregated (*see paragraph 41 and figure 6*). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame sub-body count field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame sub-body count field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by Nishimura to include the count field. The motivation for using frame sub-body count field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 2, Nishimura discloses a method of transmitting data frames over a data network wherein said PLCP overhead comprises a PLCP preamble and a PLCP header (*see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames*).

For claim 4, Nishimura discloses all the subject matter of the claimed invention with the exception wherein the concatenated MAC header further indicates a length of said plurality of MAC data frames. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data (*see paragraph 15*) wherein the aggregated frame includes one or more sub-body length fields 130 that indicate the length of the plurality of MAC data frames (*see paragraph 41 and figure 6*). A single length field or the sum of all the length fields could indicate the length of the plurality of data frames. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame length field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame length field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by Nishimura to include the frame length field. The motivation for using frame length field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 5, Nishimura discloses a frame structure of packet data for transmission over a data network including inserting said PLCP preamble after transmission of some of said plurality of MAC data frames (*see figure 6, which recite inserting a PLCP preamble after transmitting a plurality of MAC data frames from a previous combined frame*).

For claim 6, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said single PLCP overhead is provided in front of a first one of said plurality of MAC data frames (*see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames*).

For claim 7, Nishimura discloses a method of transmitting data frames over a data network wherein the header, data field, and frame check sequence correspond to a MAC header portion, a MAC frame body portion and a CRC (Cyclic Redundancy Check) portion, respectively (*see paragraph 69, which recite a MAC frame includes a MAC header, a MAC frame body containing an encapsulated IP packet, and a FCS cyclic redundancy check*).

For claim 8, Nishimura discloses all the subject matter of the claimed invention with the exception wherein said plurality of MAC data frames are addressed to a common destination, said concatenated MAC header further indicates said destination, and said MAC header portion in each data frame is a compressed MAC header that does not include a portion indicating said destination. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data (*see paragraph 15*). The resulting aggregated frame includes a single, concatenated MAC header containing a DTAID field associated with a common destination address for all the MAC sub-bodies of the aggregated frame (*see paragraph 59*). It is noted that while the destination address is consolidated, the individual sub-body headers are preserved to include the sub-body length field (*see figure 6*). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the DTAID field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The DTAID field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames as taught by Nishimura to insert the DTAID field between the PLCP overhead and the plurality of MAC data frames. The motivation for using a single DTAID field with the apparatus of transmitting

combined data frames over a data network is to improve the efficiency of the transmission by eliminating redundant address fields of a common destination.

For claim 9, Nishimura discloses a method of transmitting data frames over a data network wherein said data network is a wireless data network (*see paragraph 19, which recite an extended MPDU containing multiple MAC frames used in wireless radio transmission*).

For claim 10, Nishimura discloses a method of transmitting data frames over a data network wherein said wireless data network uses IEEE 802.11 protocol (*see paragraph 7*).

For claim 11, Nishimura discloses a frame structure of packet data for transmission over a data network, comprising: a plural number of MAC (Media Access Control) data frames (*see paragraph 69, which recite an extended MAC frame containing multiple MAC frames that are combined*); and a PLCP (Physical Layer Control Procedure) overhead including a PLCP preamble and a PLCP header (*see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames*), wherein each MAC data frame including a header, a data field, and a frame check sequence (FCS) (*see figure 6, which recite multiple MAC frames each with a MAC header, data field, and FCS field*), and only a single one of said PLCP overhead is provided to all said plurality of MAC data frames (*see figure 6, which recite a single PLCP preamble and header for the combined plurality of MAC frames*).

Nishimura discloses all the subject matter of the claimed invention with the exception wherein the method of transmitting data frames over a data network includes transmitting a concatenated MAC header indicating said plural number. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data (*see paragraph 15*) wherein the aggregated frame includes a frame sub-body count field 126 that

indicates the number of frames that are aggregated (*see paragraph 41 and figure 6*). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame sub-body count field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame sub-body count field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by Nishimura to include the count field. The motivation for using frame sub-body count field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 12, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said single PLCP overhead is provided in front of a first one of said plurality of MAC data frames (*see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames*).

For claim 14, Nishimura discloses all the subject matter of the claimed invention with the exception wherein the concatenated MAC header further indicates a length of said plurality of MAC data frames. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data (*see paragraph 15*) wherein the aggregated frame includes one or more sub-body length fields 130 that indicate the length of the plurality of MAC data frames (*see paragraph 41 and figure 6*). A single length field or the sum of all the length fields could indicate the length of the plurality of data frames. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame length field as taught by Ho et al. with the method of transmitting combined data frames over a data network

as taught by Nishimura. The frame length field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames over a data network as taught by Nishimura to include the frame length field. The motivation for using frame length field with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing information regarding the transmitted data.

For claim 15, Nishimura discloses all the subject matter of the claimed invention with the exception wherein said concatenated MAC header is located between said PLCP overhead and said first one of said plurality of MAC data frames. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data (*see paragraph 15*). The resulting aggregated frame includes a concatenated MAC header that contains a frame sub-body count field and length field (*see paragraph 41 and figure 6*). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the frame count and length field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The frame length field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames as taught by Nishimura to insert the frame count and length field between the PLCP overhead and the plurality of MAC data frames. The motivation for using frame count and length fields with the apparatus of transmitting combined data frames over a data network is to improve the robustness of the transmission by providing additional information regarding the transmitted data.

For claim 16, Nishimura discloses a frame structure of packet data for transmission over a data network wherein the header, a data field, and a frame check sequence (FCS) a MAC header portion, a MAC frame body portion and a CRC (Cyclic Redundancy Check) portion,

respectively (*see paragraph 69, which recite a MAC frame includes a MAC header, a MAC frame body containing an encapsulated IP packet, and a FCS cyclic redundancy check*).

For claim 17, Nishimura discloses all the subject matter of the claimed invention with the exception wherein said plurality of MAC data frames are addressed to a common destination, said concatenated MAC header further indicates said destination, and said MAC header portion in each data frame is a compressed MAC header that does not include a portion indicating said destination. Ho et al. from the same or similar fields of endeavor teach a method and apparatus for frame aggregation of MAC data (*see paragraph 15*). The resulting aggregated frame includes a single, concatenated MAC header containing a DTAID field associated with a common destination address for all the MAC sub-bodies of the aggregated frame (*see paragraph 59*). It is noted that while the destination address is consolidated, the individual sub-body headers are preserved to include the sub-body length field (*see figure 6*). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the DTAID field as taught by Ho et al. with the method of transmitting combined data frames over a data network as taught by Nishimura. The DTAID field as taught by Ho et al. can be implemented by configuring the apparatus of transmitting combined data frames as taught by Nishimura to insert the DTAID field between the PLCP overhead and the plurality of MAC data frames. The motivation for using a single DTAID field with the apparatus of transmitting combined data frames over a data network is to improve the efficiency of the transmission by eliminating redundant address fields of a common destination.

For claim 18, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said data network is a wireless data network (*see paragraph 19, which recite an extended MPDU containing multiple MAC frames used in wireless radio transmission*).

For claim 19, Nishimura discloses a frame structure of packet data for transmission over a data network wherein said wireless data network uses IEEE 802.11 protocol (*see paragraph 7*).

For claim 20, Nishimura discloses a frame structure of packet data for transmission over a data network wherein the PLCP overhead includes a PLCP preamble (*see figure 6, which recite a single PLCP preamble and header preceding the combined plurality of MAC frames*).

Response to Arguments

8. Claims 11-20 were previously rejected under 35 U.S.C. 101 because the claimed invention was directed to non-statutory subject matter. Claims 11-20 were drawn to a data structure per se that merely manipulates data or an abstract idea without a limitation to a practical application in the technological arts. It is noted with appreciation that the Applicant has amended the claims to overcome the rejection. In response, the rejection has been withdrawn.

9. It is noted with appreciation that the Applicant has carefully considered the previous Office Action and the cited prior art references. Applicant's arguments filed November 14th, 2008 have been fully considered but they are not persuasive.

The Applicant has amended independent claim 1 to recite:

1. (currently amended) A method of transmitting data frames over a data network, comprising transmitting a plural number of MAC (Media Access Control) data frames, each MAC data frame including a header, a data field, and a frame

check sequence (FCS), with only a single PLCP (Physical Layer Control Procedure) overhead; and

transmitting a concatenated MAC header indicating said plural number of MAC data frames with the single PLCP.

The Applicant first argues that “Ho does not suggest transmitting a concatenated MAC header indicating said plural number of MAC data frames with the single PLCP.” In response, it is noted that the 35 U.S.C. 103(e) rejection of claim 1 relies on Nishimura (U.S. Patent Application Publication 2003/0210673) to teach the limitation “transmitting plural number of MAC data frames with the single PLCP.” The 35 U.S.C. 103(e) rejection of claim 1 simply relies on Ho et al. (U.S. Patent Application Publication 2003/0169769) to recite the limitation that the concatenated MAC header further indicates the plural number of MAC data frames transmitted.

The Applicant further argues that “a frame sub-body count field, as mentioned in Ho, is not equivalent to the features recited in claims 1 and 11 because the frame sub-body count field, which may indicate the number of data fields, would not indicate the number of MAC data frames with the PLCP. Ho uses the singular form of the term ‘aggregation frame’ to identify the (singular) MAC data frame (MPDU) that is transmitted, and expressly states that this aggregation frame is a conventional MAC data frame. Thus, the frame sub-body count field does not provide the same information as the claimed concatenated MAC header.” In response, it is noted that Ho does in fact recite transmitting a plurality of MAC service data units (MSDUs) in an aggregation frame (*see paragraph 15*). It is further noted that frame subbody count field 126 indicates the number of frame subbodies 132 contained in an aggregation frame 120 (*see paragraph 44*). Each frame subbody 132 contains a MAC service data unit (MSDU) (*see paragraph*

41). Therefore, the frame subbody count field 126 indicates the number of MAC data units included in the aggregation frame with only a single PLCP overhead as recited by claim 1.

Claim 11 has been amended to recite similar limitations but is directed to a station. For at least the reasons provided above, the Applicant's arguments regarding independent claim 1 and similar arguments regarding independent claim 11 are not persuasive. Since the Applicant's arguments regarding independent claims 1 and 11 are not persuasive, dependent claims 2-10, 12-20 are not been found to be allowable.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BEN H. LIU whose telephone number is (571)270-3118. The examiner can normally be reached on 9:00AM to 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571)272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit
2416

BL